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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/597,529

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Joseph Peter Kerzman

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1028.1128101)

5974

7590

05/08/2003

Attn Charles A Johnson  
Unisys Corporation  
MS 4773  
P O Box 64942  
St Paul, MN 55164

EXAMINER

ROSSOSHEK, YELENA

ART UNIT

PAPER NUMBER

2825

DATE MAILED: 05/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/597,529

Applicant(s)

KERZMAN ET AL.

Examiner

Helen B Rossoshek

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29, 33 and 34 is/are rejected.
- 7) ☒ Claim(s) 30-32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. New corrected drawings are required in this application because arrows on Figures 6-15 need to be identified.

Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

### ***Specification***

2. The abstract of the disclosure is objected to because Page 1 line 5 Serial No. of the related US Patent Application is missing. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1, 23-25, 28, 33 and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Varadarajan et al. (US Patent 5,838,583).

As to claims 1, 23-25, 28, 33 and 34 Varadarajan et al. teaches selecting one of the nets via a user input device (col. 15, ll.26-27, 38-39; Fig. 2a); identifying selected leaf cells that are connected to the selected net (col. 26, ll.7) as shown on the Fig. 2a, wherein a circuit 201 is comprised of a plurality of instances (leaf cells) (205) and a plurality of nets (203), selected net (203) interconnects a number of instances (205); and selecting the identified leaf cells using standard cell placer (170) as shown on the Fig. 1; identifying an alignment axis; and aligning selected ones of the identified leaf cells in the direction of the alignment axis (vertical or horizontal) (col. 9, ll.39-40; col. 26, ll.3-5); the aligning step puts the selected identified leaf cells into a predetermined order along the alignment axis within specifying a serial position of the logic cell instance (leaf cell) (col. 26, ll.11-14).

***Claim Rejections - 35 USC § 103***

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5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 2-6, 15-17, 19, 20, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Varadarajan et al. as applied to claims 1, 23 and 33 above, in view of Aubel et al. (US Patent 5,696,693).

As noted above Varadarajan et al. teaches selecting the net and leaf cells that are connected to the selected net, but lacks the specifics regarding placing and aligning different type of leaf cells within a net. However with respect to claims 2-6, 15-17, 19, 20, 26 and 27 Aubel et al. teaches the identifying step include all of the leaf cells that are connected to the selected net (col. 2, ll.3-5); the identifying step include only the source leaf cell that is connected to the selected net (step 38 on the Fig. 4a) (col. 7, ll.20-22); the identifying step include only the destination leaf cells that are connected to

the selected net by selecting a second set of nodes ("target" within step 40 on the Fig. 4a) (col. 7, ll.29-32); each of the leaf cells in the circuit design database is either placed or unplaced (col. 11, ll.9-12), the identifying step only identifying those leaf cells that are connected to the selected net and are placed (abstract); the identifying step only identifying those leaf cells that are connected to the selected net and are unplaced within steps 56 on the Fig. 4a; the aligning step further including the step of placing the identified leaf cells if not already placed by making a decision in the step 56 on the Fig. 4a; the unplaced identified leaf cells are first placed in a predetermined region before alignment within test steps 59 on the Fig. 4a. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used Aubel et al. to teach the specifics subject matter Varadarajan et al. does not teach, because it allows to reduce the time and expense associated with the design process of an application specific integrated circuit.

8. Claims 7 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Varadarajan et al. as applied to claims 1, 23 and 33 above, and further in view of Garnet et al. (US Patent 6,516,456).

With respect to claims 7 and 29 Varadarajan et al. teaches selecting the net and leaf cells that are connected to the selected net, but lacks setting a current context and vectored net. However Garnet et al. teaches the step of setting a current context which is enabling for selection only those cells that are associated with the selected context (col. 16, ll.21-35); one or more nets are part of a vectored net having ordered bits (col.5, ll.15-18; ll.35-38). It would have been obvious to one of ordinary skill on the art at the

time the invention was made to have used Garnet et al. to teach the specifics subject matter Varadarajan et al. does not teach, because it allows the circuit designer selectively view nets within a database editor tool and more readily analyze the placement of the objects that are associated with the selected data and trace a net through the circuit design hierarchy.

9. Claims 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Varadarajan et al. in view of Garnet et al. as applied to claim 7 above, and further in view of Aubel et al.

The combination of Varadarajan et al. and Garnet et al. teaches the features outline previously (paragraph 8). However the combination lacks the teaching of specifics of placing and aligning different type of leaf cells within a net. With respect to claims 8-14 Aubel et al. teaches the identifying step include only those leaf cells are connected to the selected net (col. 2, ll.3-5); the identifying step include only the source leaf cell that is connected to the selected net (step 38 on the Fig. 4a) (col. 7, ll.20-22); the identifying step include only the destination leaf cells that are connected to the selected net by selecting a second set of nodes ("target" within step 40 on the Fig. 4a) (col. 7, ll.29-32); each of the leaf cells in the circuit design database is either placed or unplaced (col. 11, ll.9-12), the identifying step only identifying those leaf cells that are connected to the selected net and are placed (abstract); identifying step only identifies the source leaf cell is connected to the selected net is placed within test step 56 and path 58 on the Fig. 4a; identifying step only identifies the source leaf cell that is connected to the selected net within test step 56 and path 57 on the Fig. 4a; each of the

leaf cells in the circuit design database is either placed or unplaced (col. 11, ll.9-12), the identifying step only identifying those leaf cells that are connected to the selected net and are unplaced within steps 56 on the Fig. 4a; the aligning step further including the step of placing the identified leaf cells if not already placed by making a decision in the step 56 on the Fig. 4a; the unplaced identified leaf cells are first placed in a predetermined region before alignment within test steps 59 on the Fig. 4a. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used Aubel et al. to teach the specifics subject matter the combination of Varadarajan et al. and Garnet et al. does not teach, because it allows to reduce the time and expense associated with the design process of an application specific integrated circuit.

10. Claims 18, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Varadarajan et al. in view of Aubel et al. as applied to claim 15 and further in view of Garnet et al.

The combination of Varadarajan et al. and Aubel et al. teaches the features outline previously (paragraph 7). However the combination lacks the teaching of specifics of current context and vectored nets. Moreover as to claims <sup>18, HE</sup> 21 and 22 Garnet et al. teaches the two or more nets are part of a vectored net (col. 5, ll.15-18); the vectored net is selected at an interface of a selected logic function (col. 5, ll.35-38). It would have been obvious to one of ordinary skill on the art at the time the invention was made to have used Garnet et al. to teach the specifics subject matter the combination Varadarajan et al. and Aubel et al. does not teach, because it allows the circuit designer



selectively view nets within a database editor tool and more readily analyze the placement of the objects that are associated with the selected data and trace a net through the circuit design hierarchy.

### ***Allowable Subject Matter***

11. Claims 30-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record does not teach the aligning step orders the selected identified leaf cells in accordance with the ordered bits of the vectored net or in reverse of the ordered bits and the identified leaf cells for each ordered bit has one source leaf cell and at least one destination leaf cell, the aligning step putting the at least one destination leaf cell adjacent the corresponding source leaf cell along an axis that is perpendicular to the alignment axis.

### ***Conclusion***

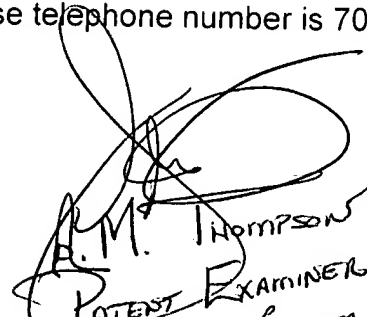
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen B Rossoshek whose telephone number is 703-305-3827. The examiner can normally be reached on 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S Smith can be reached on 703-308-1323. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

HR HR  
May 1, 2003

  
R.M. THOMPSON  
PATENT EXAMINER  
TECHNOLOGY CENTER 2800